Research Q1 Evidence Profile

Recommendation question 1a: Should organizational or health system implementation of a specialized interprofessional pain care team be recommended or not?

Recommendation: The expert panel suggests that health service organizations provide access to a specialized interprofessional pain care team for the prevention, assessment and management of pain for people experiencing acute or chronic pain.

Population: Health-service organizations or health systems or people receiving specialized interprofessional pain care
Intervention: Implementation of a specialized pain care team
Comparison: No implementation of a specialized pain care team, or pain care provided by non-specialists
Outcomes: Effective Pain management (including pain intensity or prevalence of severe pain, pain frequency, pain interference) [critical], Interprofessional team functioning, communication or collaboration [critical], Practice behaviours: Pain interventions delivered by health providers (including documentation of pain interventions delivered) [critical], Practice behaviours: Health provider completion of pain assessment (including documentation of pain assessment) [critical], Person or family satisfaction [critical]

Setting: All settings where health providers assess, prevent and manage pain.

Quality assessment							No. of participants		Effect	Certainty	Reference
№ of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Publication bias**	**Intervention**	**Control**			
Effective management of pain (including pain intensity or prevalence of severe pain, pain frequency, pain interference)											
9[a]	1 RCT and 8 non-RCT	Extremely serious [b]	Serious [c]	Not serious	Not serious	Not detected	Intensive interdisciplinary pain treatment (IIPT) for chronic non-cancer pain in children and adolescents (in-patient or out-patient) N=1,046 participants	One RCT had a control group providing a short-term waitlist to access the intervention. The other studies had no comparator group. N=110 participants	The meta-analysis (1 RCT and 8 non-RCT) had a pooled effect size that demonstrated a moderate improvement in pain intensity in favor of IIPT treatment compared to short-term waitlist or no comparison. Pain intensity outcome (Hedges g [95% CI]: g = -0.50 [95% CI -0.87 to -0.14], I^2 = 95.17%]. [d]	⊕◯◯◯ Very low	(1)
38[d]	RCTs and non-RCTs	Extremely serious [e]	Serious [f]	Not serious	Not serious	Not detected	Interdisciplinary Multimodal Pain Treatment (IMPT) programs for people living with chronic primary musculoskeletal	While many individual studies included comparison groups, the meta-analysis was only performed on the intervention arms of	After meta-analysis, the pooled effect size demonstrated a moderate improvement in pain intensity of the participants	⊕◯◯◯ Very low	(2)

Quality assessment							No. of participants		Effect	Certainty	Reference
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Intervention	Control			
							pain (most studies delivered in out-patient setting) N=14,354	the included studies. Therefore, no control group was included in this analysis.	after receiving the IMPT intervention. 38 cohorts: (pre-post) Pain intensity outcome: Effect size for pain intensity (median, range); 0.63 (−0.08 to 4.39) I^2: 99%		
Health provider completion of pain assessment											
Not measured											
Team functioning, Communication or Collaboration											
1	Non-RCT	Extremely serious [g]	Not serious	Not serious	Very serious [h]	Not detected	NEODOL© (NEOnato DOLore): An intervention to improve the pain experienced by neonates during painful procedures). This complex interprofessional intervention targets three groups: healthcare professionals (i.e., physicians and nurses), parents, and neonates of a neonatal unit. N=36 participants	N/A	Assessment of Interprofessional Team Collaboration Scale (AICTS-Total) mean scores improved for each domain and overall, post intervention. Score for total health care providers' interprofessional collaboration: Pre-intervention: 3.85 (SD 0.48) Post-intervention: 3.96 (SD 0.77)	⊕◯◯◯ Very low	(3)

Quality assessment							No. of participants		Effect	Certainty	Reference
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Intervention	Control			
Person or family satisfaction											
4	Non-RCTs	Extremely serious [i]	Not serious	Not serious	Not serious	Not detected	A variety of multidisciplinary pain interventions (see table below for specifics to each study) to measure person/patient satisfaction with the interprofessional pain team intervention. N= 2,198 participants	In one study (3608), a historical control group was used, which consisted of women with menstrual related migraine treated before 2012 and received a mono-disciplinary approach (n=22 participants) The other 3 studies did not have a control group	Three studies (3–5) measured satisfaction pre- and post-intervention with a combination of yes/no, Likert-scale and free text questions. The studies found that the participants were satisfied with the interprofessional pain intervention. One non-RCT study (6) with a comparator group (satisfaction measured pre and post intervention) found that the satisfaction improved more in the intervention group after participants received a multidisciplinary pain team intervention than the comparator group.	⊕◯◯◯ Very low	(3–6)
Health provider delivery of pain intervention											
Not measured											

Acronyms
CI = confidence interval
g = Hedges g (magnitude of effect measure)
NA = not applicable
Non-RCT=non-randomized study
RCT= randomized control trial
SD = standard deviation

Tools used to measure outcomes:

Effective management of pain:

- The numerical rating scale (NRS) was used to measure pain intensity in the nine studies reporting this outcome in this systematic review (1).

- A variety of tools were used in the 38 cohorts measured in the studies reporting this outcome in this systematic review (2).
- MDS-RAI pain scale used by health provider to assess pain intensity (categorically scored): no pain, mild pain, moderate pain, and severe pain (times when pain is horrible or excruciating) (7).

Team functioning, Communication or Collaboration

- Assessment of Interprofessional Team Collaboration Scale (AICTS-II) measures: 3 domains; partnership (8 items), cooperation (8 items), and coordination (7 items). Higher AICTS-II scores reflect improved interprofessional collaboration between team members (3).

Person or family satisfaction

- Parent Attitudes about Infant Nociception (PAIN) questionnaire was used to measure and describe parents' opinions related to their experience of managing their child's pain and their satisfaction. This questionnaire consists of 51 questions with a combination of yes/no, forced choice and Likert-type questions with additional space for comments (3).
- Person satisfaction was surveyed 2-3 years following participants previous clinic visit using 12 broad questions, with a five-point Likert scale and free-text responses (4).
- A 4-question survey was used to measure patient satisfaction. The survey used a 4-point Likert scale and free text options for responses (5).
- The Short Form (SF) -12 item Health Survey was used to measure patient satisfaction about treatment (6).

Explanations:

[a] Two RCTs and 7 non-RCTs were included from a systematic review and meta-analysis (1)

[b] The review was assessed using the ROBIS tool for systematic reviews, and had a low risk of bias. Studies included in the review reporting this outcome were assessed by the authors using the Cochrane ROB 2.0 tool for RCTs and the ROBINS-I tool for non-randomized studies. There was a high risk of bias reported by the authors in all of the studies. There were concerns noted around study methodology (all non-comparative studies), lack of blinding and self-reported outcome measures. We downgraded by 3.

[c] Five of the six studies demonstrated a positive direction of effect, however, there was high heterogeneity across the six studies (I^2 = 95.17%). We downgraded by 1.

[d] An additional RCT (7) also showed more effective pain management in the intervention group (interprofessional pain team) compared to the control group. Although this RCT was conducted prior to the publication of the included systematic reviews (1,2) it was included as a high quality RCT reporting in the long-term care setting, a setting not reported in the systematic reviews.

[d] Participants in this systematic review and meta-analysis are grouped by 38 cohorts from 58 RCT and non-RCT studies to avoid duplication of study participant outcome measure reporting (2).

[e] The review was assessed using the ROBIS tool for systematic reviews, and had a low risk of bias. The studies from which the cohorts were formed were assessed by the authors using the Joanna Briggs Institute risk of bias tools. Many of the studies were assigned a high risk of bias mostly due to concerns regarding study design (no comparative arm), statistical reporting, missing data (incomplete reporting) and participant loss to follow-up from the study (attrition) over time. We downgraded by 3.

[f] Almost all cohorts demonstrated a positive direction of effect, however, there was high heterogeneity across the 38 study cohorts (I^2 = 99%). We downgraded by 1.

[g] The risk of bias for one non-RCT study was assessed using the ROBINS-I tool, and there was a critical risk of bias related to confounding, attrition from the study over time and measurement of the outcome. We downgraded by 3.

[h] The total number of participants was well below the optimal 800 participants (N=36). We downgraded by 2.

[i] Risk of bias for four non-RCT studies were assessed using the ROBINS-I tool, and there were three studies with a serious risk of bias and one study with a critical risk of bias related to confounding and measurement of the outcome. We downgraded by 3.

References:

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Additional study details:

Reference	Study Design	Country	Intervention Group Details	Control Group Details	Reported Effects/Outcomes	Risk of bias
Effective management of pain (including pain intensity or prevalence of severe pain, pain frequency, pain interference)						
(1) *9 studies included (8–16)	Systematic review and meta-analysis of 1 RCT and 8 non-RCT studies	International: Australia, UK, USA, Canada, Germany	Interdisciplinary chronic non-cancer pain teams, delivered mostly in an in-patient setting. (N=1,046 participants in all included studies)	In one RCT study, the control group received wait-listed access to the intervention following the study trial. The remaining studies did not have a comparator group. (N=110 participants)	Positive 9 studies were reported in the meta-analysis for this outcome. Pre-posts comparison for pain intensity outcome: After meta-analysis, the pooled effect size demonstrated a moderate improvement in pain intensity in favor of IIPT treatment compared to short-term waitlist or no comparison. Pain intensity outcome: Hedges g = -0.50 [95% CI -0.87 to -0.14], I^2 = 95.17%	Systematic review: Low Individual studies: High
(2) Participants grouped into 38 cohorts from across studies reporting this outcome to avoid duplication of study participant reporting	Study designs from which the patient cohorts were collected were: RCTs, non-RCTs, case series and five other types of study design not described.	International: UK, USA, Germany, Sweden, Switzerland, Iran, France, Denmark, Norway, Netherlands and Malaysia	Interdisciplinary Multimodal Pain Treatment programmes for adults living with chronic primary musculoskeletal pain. (N=14,354 participants across the 38 cohorts)	While many individual studies included comparison groups, the meta-analysis was only performed on the intervention arms of the included studies. Therefore, no control group was included in this analysis.	Positive After meta-analysis, the pooled effect size demonstrated a moderate improvement in pain intensity of the participants after receiving the IMPT intervention. 38 cohorts: (pre-post) Pain intensity outcome: Effect size (median, range); 0.63 (−0.08 to 4.39) I^2: 99%	Systematic review: Low Individual study cohorts: High
(7)	RCT	Netherlands	STA OP! multidisciplinary pain program (implementation) involved all healthcare professionals (i.e. nursing staff, physicians, psychologists, and physiotherapists) received a series of comprehensive stepwise multidisciplinary training sessions. To link the implementation of the intervention into practice, it was integrated into daily or weekly team meetings. Pain was assessed in a standardized manner by the nursing staff member who was familiar with the resident and who was	Healthcare professionals working on units in the control condition also received training. However, importantly, this training lacked the stepwise approach, while targeting general nursing skills, dementia management, and knowledge about pain in dementia. The project coordinator also visited all the units in the control condition once a week and also answered questions, but in case of the control condition, provided general information on challenging behavior, pain, and dementia management. A physician experienced in pain management in dementia trained all	Positive The study reported a positive direction of effect for pain intensity scores (deceased) after receiving a multidisciplinary pain team intervention vs. the comparator group who did not receive the multidisciplinary pain team intervention. Intervention effect on pain intensity measured through regression modeling on two pain scales (adjusted mean difference): PACSLAC-D tool overall (β (95% CI): −1.21 (−2.35 to −0.06) MDS-RAI tool overall (β (95% CI): −0.01 (−0.36 to 0.35)	Low

			trained by an external certified trainer with a nursing background. The PACSLAC-D and the MDS-RAI pain scale were administered before, at 3months, and at 6months after the intervention started. This included the following steps: 1. Identification of behavior change in a resident 2. Conduct a basic care needs assessment 3. Perform a pain and physical needs assessment 4. Perform an affective needs assessment 5. Administer a trial of non-pharmacological comfort treatment tailored to the individual resident 6. If ineffective, administer a trial of prescribed analgesic medications. 7. If ineffective, consult with other team disciplines. (N=148 participants)	elderly care physicians responsible for the control and the intervention units, based on the guidelines for pain and behavior of the Dutch Association of Elderly Care Physicians and Social Geriatricians. (N=140 participants)		
Team functioning, Communication or Collaboration						
(3)	Non-RCT	Switzerland	NEODOL© (NEOnato DOLore): an intervention to improve the pain in neonates) (5 months). This complex interprofessional intervention targets three groups: healthcare professionals (i.e., physicians and nurses), parents, and neonates of a neonatal unit. **1)HCP:** educational elements Pain-IASP were combined with documentation on procedural pain to improve knowledge and	NA	Assessment of Interprofessional Team Collaboration Scale (AICTS-Total) mean scores improved for each domain and overall, post intervention. By domain: Pre-intervention [T0] (n=47) AICTS mean scores for each domain: partnership 3.85 (0.65) cooperation: 3.96 (0.50) coordination 3.75 (0.54) AICTS-total: 3.85 (0.48) Post-intervention [T2] (n=36) AICTS mean scores for each domain:	Critical

			interprofessional collaboration - facilitated by pain 'champion' **2)Parents:** received written information on procedural pain management and to improve involvement during painful procedures. **3)Newborns:** bundle of procedures were formulated to be applied by healthcare professionals prior to the painful procedure to reduce pain as much as possible. (N=36 participants)		partnership 4.05 (0.76) cooperation: 3.99 (0.81) coordination 3.86 (0.84) AICTS-total: 3.96 (0.77) Mean AICTS scores overall: Interprofessional Collaboration Scores (AICTS) overall: All HCP Pre-intervention (N=47) Mean (SD): 3.85 (0.48) All HCP Post-intervention (N=36) Mean (SD): 3.96 (0.77)	
Person or family satisfaction						
(5)	Non-RCT	Italy	the patient is seen by the multi-disciplinary oncology team (MDOT) which comprises an oncologist (coordinator), palliative care specialist, radiotherapist, oncologist (coordinator), palliative care specialist, radiotherapist, physiatrist, and oncology nurse. All take part in the decision process. At the end of the visit, the patient receives a detailed report with the MDOT's recommendations and indications (N=2,051 participants)	N/A	Participants completed an anonymous questionnaire on the quality of the MDOT service, the majority (69.4%) expressing high satisfaction.	Serious
(3)	Non-RCT	Switzerland	NEODOL© (NEOnato DOLore): An intervention to improve the pain in neonates) (5 months). This complex interprofessional intervention targets three groups: healthcare professionals (i.e., physicians and nurses), parents, and neonates of a neonatal unit. The questionnaire "Parent Attitudes about Infant Nociception" (PAIN) was submitted pre and post	N/A	Positive Authors reported on the PAIN questionnaire that describes parents' opinions related to their experience of managing their child's pain and their satisfaction. Parent reported neonate pain (range 0-10): mean [SD]: Before intervention (n=10): 4.4 [2.55]. After intervention (n=14): 3.93 [2.81]. Parent expected neonate pain: (range 0-10): mean [SD]:	Critical

			intervention and used to describe parents' opinions related to their experience of managing their child's pain and their satisfaction. This questionnaire consists of 51 questions with a combination of yes/no, forced choice and Likert-type questions with additional space for comments N=10 pre-intervention plus; N=14 post-intervention (different participants than pre-intervention)		Before intervention (n=10): 2.8 [2.35] After intervention (n=14): 3.31 [1.75] Before the NEODOL© (NEOnato DOLore) intervention, 70% of parents reported that healthcare professionals had never or not often asked them about their preferences to be present or not during painful procedures. After the intervention, 50% of the parents had not been asked about their preferences.	
(4)	Non-RCT	Australia	Interdisciplinary clinic: a physiotherapist, pain and rehabilitation physician, musculoskeletal physician and neurosurgery – set up a monthly clinic from August 2012-September 2014. Participants were provided with a diagnosis, and invited to discuss the proposed management plan and decide on future steps with all four practitioners. N=43 participants	N/A	63% of patients agreed or strongly agreed with 'I was fully satisfied with the service provided'	Serious
(6)	Non-RCT	Netherlands	Multidisciplinary treatment at a menstrual migraine clinic. Participants were women at the clinic treated between 2012 – 2014. Participants saw: 1) nurse practitioner specialized in migraine who initiates migraine treatment such as attack and prophylactic medication, + 2) gynecology nurse practitioner who focuses on prevention of the hormonal trigger of menstrual migraine through hormonal treatment. Drug therapy was	Participants received monodisciplinary treatment Participants treated before 2012, by either a neurologist or a migraine focused nurse practitioner. (N=22 participants)	Authors found that the satisfaction improved in the intervention group after receiving the multidisciplinary pain treatment. At first visit the median level of satisfaction was three (sometimes satisfied with treatment), while during follow-up the satisfaction was scored with a median of four (very often satisfied). However, authors noted that the multidisciplinary intervention did not improve the total participant scores overall on the SF12 questionnaire.	Serious

			individualized to the patient's needs according to the guideline for headache of the Dutch Association of Neurology. (N=88 participants)			